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Effect of alloying elements on microstructure, mechanical and damping properties of Cr-Mn-Fe-V-Cu high-entropy alloys

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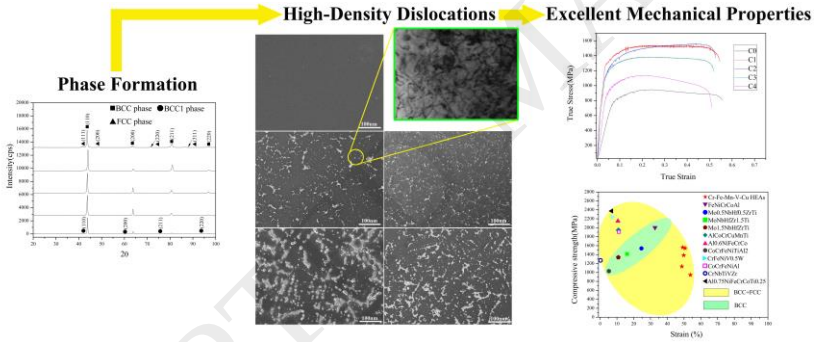
Graphical abstract



Highlights

- New Cr-Fe-Mn-V-Cu high-entropy alloys with a great balance between strength and ductility were designed and developed.
- Strong Mn-V interaction and immiscibility of Cu lead to formation of multi-phase solid solutions in the investigated high-entropy alloys.
- High strength and damping capacity of CrMn0.3FeVCu0.06 alloy result from high density of dislocations and fine FCC precipitates.

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Abstract: A series of new Cr-Mn-Fe-V-Cu high-entropy alloys were prepared by arc